

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-9 (Canceled).

10. (Original) A lithographic projection apparatus comprising:

a first radiation system that provides a beam of radiation;

a support structure that supports a patterning structure, the patterning structure configured to pattern the projection beam according to a desired pattern;

a substrate support that supports a substrate;

a projection system that projects the patterned beam onto a target portion of the substrate, said projection system including an optical element that has a beam entry area and an optical element that has a beam exit area through each of which said patterned beam passes;

a fluid cleaning system that cleans a fluid to be introduced into a region in which said optical element is disposed, said fluid cleaning system comprising

a fluid inlet that receives fluid to be cleaned and a fluid outlet that supplies cleaned fluid to said region of said apparatus,

a cleaning zone that cleans said received fluid, said cleaning zone being disposed between said inlet and said outlet, and

a second radiation system that provides radiation to said cleaning zone to cause dissociation of a contaminant present in said fluid in said cleaning zone; and

a nucleated surface provided with a plurality of nucleation sites, wherein said nucleated surface is disposed in said cleaning zone.

11. (Currently Amended) A lithographic projection apparatus according to claim 10, wherein said cleaning zone is disposed away from said beam entry area ~~of~~ and said beam exit area.

12. (Original) A lithographic projection apparatus according to claim 10, wherein said radiation is incident on said nucleated surface.

13. (Original) A lithographic projection apparatus according to claim 10, wherein said cleaning zone comprises a chamber.

14. (Original) A lithographic projection apparatus according to claim 13, wherein said chamber includes a plurality of walls transparent to said radiation, said walls disposed so as to define a fluid path through which said fluid passes from said fluid inlet to said fluid outlet.

15. (Original) A lithographic projection apparatus according to claim 14, wherein said walls are arranged so that said fluid path has a length longer than a dimension of said chamber in a direction of propagation of said radiation.

16. (Original) A lithographic projection apparatus according to claim 14, wherein said walls are interleaved.

17. (Original) A lithographic projection apparatus according to claim 10, wherein said nucleated surface comprises a surface of foamed or glass wool.

18. (Original) A lithographic projection apparatus according to claim 17, wherein said foamed or glass wool is disposed in said chamber.

19. (Original) A lithographic projection apparatus according to claim 10, wherein said chamber is constructed so that the time it takes for said fluid to pass from said inlet to said outlet is sufficient to achieve dissociation of a contaminant in said cleaning zone.

20. (Original) A lithographic projection apparatus according to claim 10, wherein said nucleated surface is constructed so that the time it takes for said fluid to pass from said inlet to said outlet is sufficient to achieve association of a dissociated contaminant with said nucleated surface.

21. (Original) A lithographic projection apparatus according to claim 10, wherein the surface area of said nucleated surface is greater than the surface area of a lens comprised in said projection system.

22. (Original) A lithographic projection apparatus according to claim 10, wherein said nucleation sites are salt crystal growth seeds and said association includes the formation of salt crystals at or in the vicinity of said nucleation sites.

23. (Original) A lithographic projection apparatus according to claim 10, wherein said contaminants are retained on said nucleated surface as salt crystals.

24. (Original) A lithographic projection apparatus according to claim 10, wherein said first and second radiation systems are the same.

25. (Original) A lithographic projection apparatus according to claim 10, wherein said first and second radiation systems are independent from each other.

26. (Original) A lithographic projection apparatus according to claim 10, wherein said first and second radiation system provide radiation having substantially the same wavelength.

27. (Original) A lithographic projection apparatus according to claim 10, wherein said surface is replaceable.

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Claims 28-34 (Cancelled).